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**COST-BENEFIT STUDY FOR
RECONSTRUCTION OF THE NORTH CANOL ROAD**

**Proposal Prepared for
INDIAN AND NORTHERN AFFAIRS CANADA**

**By
Hickling-Partners Inc.**

December 1981

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1.0 INTRODUCTION

1.1 THE PROPOSAL

This proposal is prepared in response to a request from Indian and Northern Affairs Canada to undertake a cost-benefit study for the reconstruction of the North Canal Road in the Yukon.

1.2 BACKGROUND

Recent work undertaken by Hickling-Partners Inc. has allowed us to gain experience in the areas of the impact of mining operations in the North and the problems associated with cost recovery. In section 2.0 of the proposal based on this experience, and our very considerable experience in the area of socio-economic assessment and cost benefit analysis, we discuss some of the important issues for the present study.

1.3 APPROACH

Our approach outlined in section 3.0 stresses the need to consider both the independence and inter-dependence of the two major sections of the study: the socio-economic impact and the cost recovery issue. In addition our approach indicates that the problem of uncertainty is a factor which must be taken into account in the decision making process surrounding the road reconstruction; suggestions for overcoming the problem are contained in section 3.0.

1.4 METHODOLOGY

Our methodology discussion in section 4.0 deals with the need for different methodologies required for the socio-economic assessment and cost recovery. The socio-economic assessment is concerned with the need first to consider the overall costs and benefits of the road reconstruction to Canada and then the distribution of these costs and benefits. Where possible costs and benefits will be considered on a quantitative basis; if quantification is not always possible qualitative discussion will be necessary. The methodology for cost recovery needs to consider what methods of recovering costs are possible and practical and the different scenarios for cost recovery.

1.5 THE TASKS AND THE STUDY TEAM

We have identified five separate sets of tasks required for the study in section 5.0 and describe participation of team members in each of these tasks. We have gathered together a project team combining individuals with all the requisite skills and experience. In section 6.0 we discuss the responsibilities of each of the team members and the organization of the study team.

1.6 PROJECT DURATION

In section 7.0 we discuss reasons why we feel we cannot meet the timetable for the study laid down in the terms of reference. We propose instead a compromise which we feel meets the constraints placed on the client and our concerns for ensuring the quality of the study's conclusions and recommendations. We plan to produce an Interim Report by mid-February, 1982, a draft final report by the end of March 1982 and a final report by the end of April 1982. Details are contained in section 7.0.

1.7 COSTS

Our fixed price for undertaking the study is \$40,250 including all professional fees and out of pocket expenses. We have proposed, for the purposes of negotiation, a payment schedule different to that contained in the terms of reference. Details are contained in section 8.0.

2.0 BACKGROUND

1 INTRODUCTION

The North Canol Road in the Yukon runs for approximately 250 kms between the Robert Campbell Highway and the MacMillan Pass. The major reason that consideration is being given to upgrading the existing road is to provide improved access to mineral deposits in the MacMillan Pass area.

A study of the engineering options for upgrading the road has already been undertaken* and the purposes of the present study are to undertake a comprehensive analysis of the associated socio - economic costs and benefits of the road and to examine methods by which the costs of road upgrading and maintenance may be recovered. As a result of the engineering study a recommendation was made on an upgrading standard for the road. The present study is to examine the impact of two engineering options for upgrading:

- i) minimal upgrading
- ii) upgrading to DCU 80 standard

2 SOME IMPORTANT ISSUES FOR THE ANALYSIS

2.2.1 The Minimal Upgrading Option

It is noticeable from the engineering studies that the incremental engineering and construction costs of the DCU 80 option over minimal upgrading are considerable at around \$35 million. A complete analysis of the minimal upgrading option is, however, not undertaken in the study since it is considered that this option is of an insufficient standard to meet the requirements of the proposed mining operations. The costs associated with the minimal upgrading option will therefore have to be developed as part of the present study. For the DCU 80 option we would expect to use the capital costs (engineering and construction) and road user costs detailed in the engineering study.

2.2.2 The Incremental Approach

It would appear from the engineering study, that there is little or no traffic on the existing road. The potential benefits of upgrading the road, therefore, are those areas of socio-economic activity which will be "generated" as a result of the upgrading. The major activity has been identified as mining although other potential sectoral economic impacts are alluded to in the terms of reference e.g. forest products. The important point to note at this stage is that many factors will lead to the successful development of these sectors of which the road upgrading is only one. The objective of the study, however, is to determine the incremental socio - economic impact of only the road reconstruction. The assumptions that are made about the other factors, however, will be critical to the outcome of the socio-economic impact of the road; it is important that the effects of these other factors are taken into account in the approach to, and methodology for, the study.

* North Canol Road Reconstruction Study. Prepared for Indian & Northern Affairs Canada by Stanley, Underhill & Underhill. September 1981.

2.2.3 The issue of uncertainty

It is our experience gained from undertaking similar studies in the North* that an important factor in the outcome of the socio-economic impact of such a road development is the assumed effective operating life of the mines concerned. The road engineering study assumed a range of lives from 10 years to over 100 years. We would expect to pursue this issue in depth with the mining companies and if necessary build any unexpected uncertainties into the assessment of the socio-economic impact. The problem of uncertainty is an issue which clouds any study like the present one. The total impact of the road will depend almost totally on events that are yet to take place; in the case of the existing road there is not even an existing level of utilization of the road which could justify some form of road upgrading. We feel that this fact has important implications for the decision-making process on the road improvement and we will reflect this in our approach to the study.

2.2.4 The Impact of Cost Recovery

Based on our recent experience** the use of cost recovery can have a very substantial impact on the socio-economic outcome of a project. In particular it is important that the recovery of costs is related to the incidence of benefits resulting from the project if all the potential socio-economic benefits are not to be eliminated and substantially reduced. The importance of this impact is discussed further in section 3.0 - approach - and in the methodology for examining cost recovery discussed in section 4.0.

2.2.5 The exclusion of the Howard's Pass Area

We have assumed, based on the definition of the scope of the study in the terms of reference and after discussions with the client, that the implications of the potential mining development in the Howard's Pass area are not part of the present terms of reference.

* For example, Evaluation of the Nanisivik Mine Project undertaken for Indian & Northern Affairs Canada, May 1981.

** Feasibility study of extending the navigation season on the St. Lawrence Seaway undertaken for Transport Canada, July 1981.

3.0 APPROACH

Our approach to the study is determined by the need to:

- examine different sections of the study both independently and inter-dependently;
- take into account the problem of uncertainty for the purposes of decision making on reconstructing the road.

3.1 THE DIFFERENT SECTIONS OF THE STUDY

The study breaks down conveniently into two discrete sections:

- the socio-economic impact;
- the cost recovery issue.

These are two discrete sections in that the inputs and outputs from the analyses of the two sections are different. The socio-economic impact is concerned with the social and economic costs and benefits resulting from the improvement to the road; the cost recovery issue is concerned with examining the means by which certain expenditures by the government may be recovered from users of the facility.

The inter-dependence exists, however, because the introduction of the principle of cost recovery for the facility can effect the outcome of the socio-economic assessment. Thus in the case where the government builds and maintains the road with no cost recovery an individual mining company would view this as a "free" item from the viewpoint of the project; once cost recovery is introduced, however, the road costs become part of the costs of operating the mine and hence will effect its perceived profitability. This could influence the extent of operations at the mines and the resulting socio-economic impact; this inter-dependence will also influence recommendations on the cost recovery. The approach required, therefore is an iterative one as shown in figure 1 with iteration continuing until some equilibrium is established for both cost recovery and socio-economic impact.

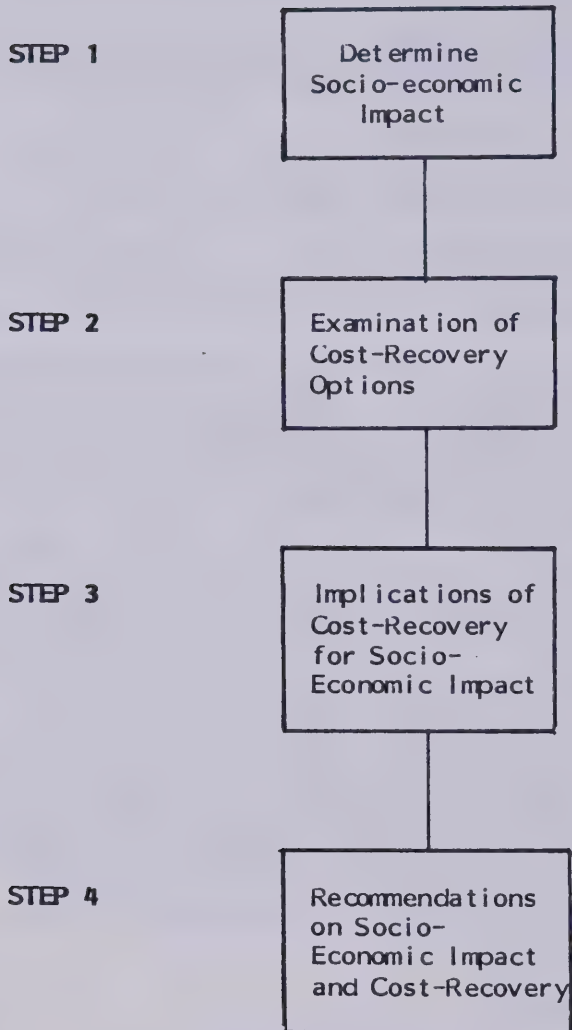
3.2 THE PROBLEM OF UNCERTAINTY

We have already emphasised in section 2.0 the inevitable importance of uncertainty in the present study. Our approach to this problem is to try and circumscribe the extent of uncertainty in the decision making process and we would propose to do this in the following two ways.

- the development and examination of different scenarios;
- the use of sensitivity analysis.

Figure 1

APPROACH TO THE STUDY



3.2.1 The Development of Different Scenarios

The terms of reference imply the development of different scenarios during the study e.g. the financing of the road should be assumed to cover the spectrum from no government financing to total government financing; different types of cost recovery options are to be considered and these may impact differently on the project. In addition to these requirements we would suggest, from our experience (as discussed in section 2.0), that it may be necessary to consider different scenarios for the development of the mines.

In that our objective is to assist the decision-making process and not to confuse it, we would not expect to develop a myriad of scenarios for analysis; we would suggest at this stage that two such scenarios might be required e.g. in terms of mining activity "most optimistic" and "most pessimistic" scenarios could be examined. We would need to determine the need for such scenarios at the outset of the study; should they be required they would become a part of our approach.

3.2.2 The Use of Sensitivity Analysis

This has become a well accepted tool for use in socio-economic assessment studies and when used in the right way is of assistance in the decision making process. We would suggest that in the case of the present study with its element of uncertainty it is likely to prove both a useful analytical tool and of assistance in the decision-making process.

4.0 METHODOLOGY

The methodology for the two sections of the study specified in section 3.1 are outlined in the following paragraphs.

4.1 THE SOCIO-ECONOMIC ASSESSMENT

The socio-economic assessment will be concerned with:

- i) assessing the overall costs and benefits of the reconstruction of the road to Canada in terms of
 - direct (or internal) costs and benefits associated with the road development; these will be both quantitative and qualitative. Examples of a quantitative nature would be the benefit of the value-added to Canada brought about by the mine development and the additional number of jobs created in the operation of the mines. An example of a qualitative nature might be the environmental impact e.g. impact on wildlife and water quality in the area;
 - indirect (or external) costs and benefits both quantitative and qualitative e.g. the impact on the local communities servicing the mining development; impetus given to the development of other industries serving the mining sector; any impact on other mining developments in the region.
- ii) assessing the distribution of costs and benefits emanating from the road reconstruction e.g. possible distributional effects for analysis are impacts by region; by economic sectors; by sectors of the population; between public and private sectors. We would expect to determine the extent of this distributional analysis at the outset of the study although some of the distributional impacts are specified in the terms of reference e.g. the impact on natives; impact on the forest products industry; regional economic impact.

For the socio-economic assessment we would use the established cost-benefit analysis technique including all costs and benefits which could be so quantified; selection of the necessary project life of the road for the analysis would take place early in the study; the discounted cash flow analysis computing present values for future streams of costs and benefits would initially use a discount factor of 10 per cent as recommended by Treasury Board with possible use of other rates in the sensitivity analysis.

Those factors which could not be included in the calculation of the specific cost-benefit indicator would be presented in such a way as to assist the decision making process on the total impact of the study. This will probably be the situation, for example, for environmental and distributional impacts. Environmental impacts are often difficult to quantify and may be presented in a qualitative way. The inclusion of the distributional impact in the calculation of the cost-benefit indicator on anything other than an equal basis requires a determination of "weights" for the different sectors; whether or not this is done for the present study we would still expect to state those distributional impacts requested by the client.

4.2 COST RECOVERY

Two aspects of cost recovery have to be considered:

- what methods of recovering costs are possible and practical?
- different scenarios for recovering costs.

4.2.1 Methods of Cost Recovery

The normally accepted method of cost recovery for a road development would be a user pay system based on the imposition of a "toll" each time the road is used. This is normally the most acceptable approach since it relates specifically to use of the road and the costs which any user imposes on that road. In the case of the North Canol road, however, the engineering study implies that there is little or no traffic that will use the road other than that from the mines. If this is the case (to be determined during the course of the study) a toll collection system on the road might be unnecessary and costly. It might, for example, be administratively easier, and less costly, to recover the costs through imposition of charges on each mine based on output.

To assist the analysis of methods of cost recovery the study will need to try and attribute benefits to different sectors resulting from the road development. From the mining companies points of view an initial financial indicator of this benefit might be the net profit after tax generated by the mines; the extent to which this could be used to recover the costs of the road development would depend on the minimum rate of return which the mining companies require to proceed with new mining developments. In addition the mining companies may have spin-off benefits for other parts of their operation resulting from the mine development which would need to be calculated. The concept of "producers surplus" i.e. the benefit to the mining company over and above the costs it is required to meet for the operation may be a useful methodology for discussing cost recovery options.

On the government side its benefits must also be assessed e.g.

- the extent to which the road development is assisting its objectives for the area;
- the saving to the government in terms of cash transfer to the region;
- the additional revenues raised in taxation and from royalties.

The two parameters which will at the outset of the study, form the basis of the cash recovery option analysis are that cost recovery should, in some way, be based:

- on the use of the road; and

- on the benefits to different individuals and sectors resulting from the road development.

These parameters will be revised and amended, as necessary, during the course of the study.

4.2.2 Different Scenarios for Cost Recovery

Three scenarios have been indicated in the terms of reference:

- no government financing;
- partial government financing;
- total government funding.

We would not expect to expand the number of scenarios during the study since this would likely lead to increasing the complexity of the cost recovery issue rather than its clarification. This analysis will be closely tied to the examination of cost recovery methods discussed in 4.2.1 with the overall objective of making practical recommendations for cost recovery.

5.0 TASKS

TASK 1 Project planning and review of existing information.

Task 1.1 Review all existing documentation of relevance to the project and undertake preliminary interviews.

Task 1.2 Formulate a project plan and discuss with client.

Task 1.3 Undertake necessary work for data collection stage e.g., arranging interviews; visits.

TASK 2 Data and information collection.

Task 2.1 Visits and discussions with all interested and relevant organizations.

Task 2.2 Collect and assemble all information and data required for analysis.

TASK 3 Data and information analysis.

Task 3.1 Examination of socio-economic assessment.

Task 3.2 Analysis of financial impact in terms of cash flow to different sectors.

Task 3.3 Examination of cost recovery options and scenarios.

Task 3.4 Determine optimum situation for socio-economic assessment and cost recovery.

Task 3.5 Undertake sensitivity analysis for both cost recovery and socio-economic assessment.

TASK 4 Conclusions, recommendations, and draft final report.

Task 4.1 Drawing of conclusions and recommendations for road reconstruction.

Task 4.2 Production of draft final report.

TASK 5 Consultation and production of final report.

The participation of individual team members in, and the total allocation of team effort to, each of the major tasks is shown in table 5.1

Table 5.1

Allocation of tasks to team members

<div>Task Team Member</div>	1	2	3	4	5
B. Waters	x	x	x	x	x
D. Deziel	x	x	x	x	-
A. Simon	x	x	x	x	-
Z. Carballera	x	x	x	x	-
M. Bartlett	x	-	x	x	-
K. Walker	x	-	x	x	-
TOTAL Person/Days	10	35	30	10	5

It is expected that the core team of four senior consultants (see section 6.0) will initially be responsible for undertaking 70-75% of the work involved in the tasks for the study. This will be adjusted, as required, during the course of the study.

6.0 THE STUDY TEAM AND ITS ORGANIZATION

6.1 THE ORGANIZATION

We would propose a core team of four senior consultants to cover the major areas of the study with assistance from two other consultants where it is felt they are best utilised. Each of the senior consultants is able to bring a great deal of experience to their respective areas of responsibility. The organization of the Study Team is shown in Figure 6.1.

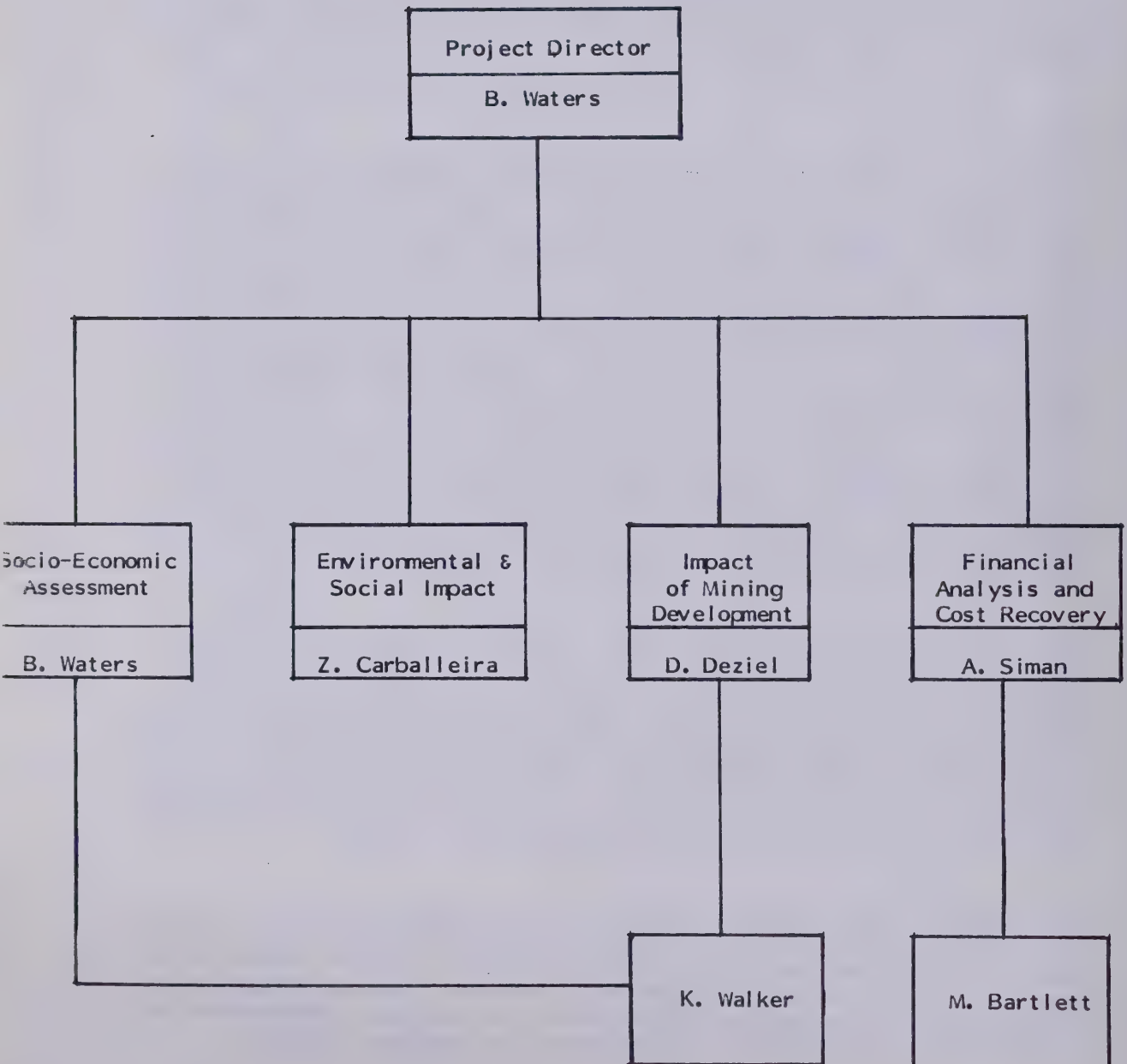
6.2 THE INDIVIDUALS

The Project Director will be Mr. Brian Waters an Associate Partner with Hickling-Partners Inc. He has very extensive experience in the area of socio-economic assessment of roads and other infrastructural development projects having been involved in approximately fifteen such projects in the last ten years in Canada, the U.K. and overseas. His most recent experience in Canada has been as project manager for a feasibility study of extending the navigation season in the St. Lawrence Seaway for Transport Canada; this study involved both a socio-economic assessment and an examination of cost recovery methods and implications of instituting cost recovery. In addition, he has acted as advisor to the Department of Regional Economic Expansion on the socio-economic assessment of road projects and is presently embarking on a review of the cost-benefit analysis of the expansion of Toronto International Airport. His responsibilities would be to ensure the quality and timeliness of the study as a whole; to develop the overall methodology; to carry out the socio-economic assessment; to undertake interviewing; liaising and consultation with the client; production of all reports.

Dr. David Deziel, a Partner with Hickling-Partners Inc., will be responsible for assessing the overall impact of the mining development. Dr. Deziel brings to the study a very wide experience in the consulting field including work undertaken in the areas of minerals development, transportation and socio-economic assessment. More specifically, he has been involved in project planning for the Mackenzie Highway and in the impact of oil and gas development in the Mackenzie Delta. Most recently he has been involved in an evaluation of the Navisivik Mining Project in the North West Territories for the Department of Indian and Northern Affairs, a project of direct relevance to the present study.

Mr. Andrew Siman, a Senior Consultant with Hickling-Partners Inc. has a wide financial experience in industry associated areas of the public sector. He has an intimate knowledge of financing in the private sector particularly those areas concerned with providing financial incentives to industry and the impact on profitability. He would be responsible for the financial analysis aspects of the study and with cost recovery.

Figure 6.1
Organization of the Study Team



Ms. Zoraida Carballeira, a Consultant with Hickling-Partners Inc., has worked extensively over the last ten years in the fields of social and environmental impact of projects and programs in the U.S. She has specific experience of examining the impact of development on native rights, wildlife protection and local land use patterns.

Mr. Michael Bartlett, a Consultant with Hickling-Partners Inc., would assist in the financial analysis and cost-recovery areas. Since receiving his M.B.A. Mr. Bartlett has worked on projects of direct relevance to the present study including: a statistical analysis of gasoline consumption in the Yukon for which he organized data collection and prepared an analysis; an evaluation of capital investments for a recent municipal fleet management study in Ontario.

Ms. Karen Walker, a Consultant with Hickling-Partners Inc. would assist in assessing the impact of the mining development. Her broad experience in the data collection and statistical analysis fields would be of particular benefit here.

6.3 THE REQUIREMENTS FOR ENGINEERING INPUTS

We have already discussed in Section 2.2 the need to develop some engineering costs for the "minimal upgrading" alternative; we are particularly concerned that in the most recent engineering study on the road the maintenance costs for this alternative are insufficiently developed for the purposes of the socio-economic assessment. We do not propose to provide specific engineering expertise as part of the study team but will rely on discussions with the organizations responsible for the engineering studies on the North Canol road and other roads that may have been studied in the region; in addition we would expect to consult with other sources for such information e.g. government of the Yukon.

6.4 LIAISON WITH THE CLIENT

It is the responsibility of the project director to ensure a continuous liaison with the client during the course of the study. This liaison will take place as and when required. We would not expect to produce any more formal reports than are outlined in section 7.0. We would suggest, however, that an informal monthly meeting should take place between the project director and the client to discuss progress, achievement of targets and plans for the next period.

7.0 PROJECT DURATION

The terms of reference requests that the results of the study should be received by the Department of Indian and Northern Affairs no later than 1st February 1982. Allowing for a commissioning of the project by mid-December 1981 means that the effective project study period is reduced to six weeks including the time required for production of a draft final report. We have discussed with the client our concern over what we feel is a very short period for a study of this kind. We understand the constraints under which the Department is operating but would suggest that if this timetable is adhered to for production of the final results the quality of the study's conclusions will suffer accordingly.

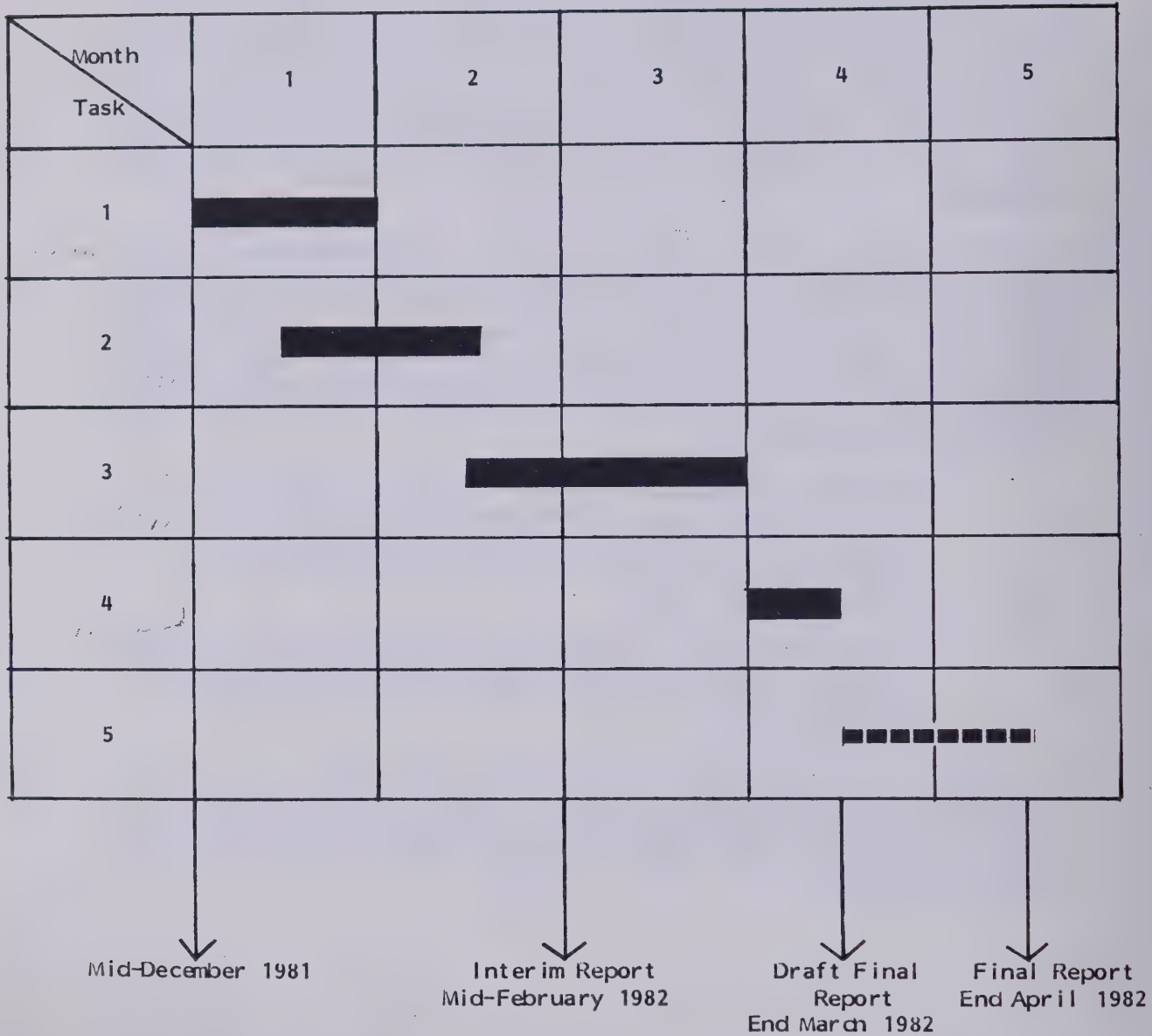
We would suggest, as a basis for negotiation, a compromise which we feel both meets the constraints placed on the client and the requirements of undertaking a satisfactory study. On the assumption that the study would commence by mid-December 1981 we would propose to produce a brief Interim Report by mid-February 1982 which, it is planned, would contain indications of the expected outcome of the socio-economic assessment and the likely impact of cost recovery on this. More specifically objectives of this report would be to:

- produce an indication for the project as a whole as to whether the outcome of the socio-economic assessment of the road reconstruction will be positive or negative; no distributional aspects would be considered or sensitivity analysis undertaken;
- give a preliminary indication of the impact of cost recovery and the extent to which the government could go to recover its costs without adversely affecting the socio-economic assessments.

We would then go on to produce a draft final report by end-March 1982. Following a consultation period with the client on the results of the study and receipt of any comments we would propose to produce a final report by the end of April 1982. A timetable for the project by task is shown in table 7.1.

TABLE 7.1

Project Timetable by Task

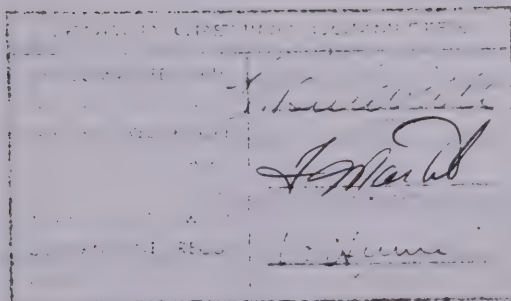


8.0 COSTS

Our fixed price for undertaking the study outlined in the present proposal is \$40,250, including all professional fees and out-of-pocket expenses. The project would entail visits to each of the mining companies and to the Yukon for discussions with the government and with interested parties. We would produce six copies of the draft final report and fifteen copies of the final report as requested and would expect to make one major presentation to the client as a result of the study.

The method of payment proposed in the terms of reference is 50% payable upon receipt of draft final report and 50% upon receipt of a satisfactory final report. We would propose, for the purposes of negotiation, the following payments schedule:

- 30% on commissioning of the project;
- 30% on presentation of interim report;
- 30% on presentation of draft final report;
- 10% on presentation of final report.



9.0 EXPERIENCE OF THE FIRM AND ITS INDIVIDUALS OF RELEVANCE TO THE PRESENT PROJECT

We produce here a list of the projects undertaken by the firm and its members of direct relevance to the present project broken down into the following categories:

- (i) socio-economic assessment and cost-benefit analysis;
- (ii) social/environmental impact;
- (iii) mining;
- (iv) cost recovery.

(i) Socio-economic assessment and cost-benefit analysis

- advisor to the Department of Regional Economic Expansion on socio-economic assessment of road projects;
- socio-economic impact of pipeline development in Whitehorse;
- impact of extending the navigation season on the St. Lawrence Seaway;
- cost-benefit analysis of the railway relocation program;
- evaluation of the frigate program;
- preliminary socio-economic impact assessment of PCB control;
- cost benefit analysis of upgrading Surabaya-Malang highway, Indonesia**;
- socio-economic assessment of major new link between the coast and Caracas, Venezuela**;
- socio-economic assessment of new deep water port, Belize**.

(ii) Social/Environmental Impact

- regional planning in the MacKenzie Delta;
- impact of road bridge construction in an area of greenbelt;
- management of coastal resources*;
- studies of impact of infrastructural development in wildlife; native rights, wetlands; land use*;
- studies of protection of ground-water resources*.

(iii) Mining

- evaluation of the Nanisivik Mining Project

(iv) Cost Recovery

- Examination of methods of recovering costs associated with season extension on the St. Lawrence Seaway.

All projects were undertaken in Canada except those marked * which were undertaken in the U.S. and those marked ** which were undertaken overseas.



Brian A. Waters

RESUME



PERSONAL INFORMATION

Date of Birth: December 14, 1943
Citizenship: British
Languages Spoken: English
Security Clearance: Secret

PROFESSIONAL QUALIFICATIONS

B.Sc. (Economics and Social Sciences), Southampton University (1965)

EMPLOYMENT HISTORY

Associate Partner, Hickling-Partners Inc. Ottawa
(1978 - present)
Senior Economist, Mott, Hay and Anderson, United
Kingdom (1974 - 1978)
Senior Economist, Colin Buchanan and Partners, United
Kingdom (1972 - 1974)
Economic Consultant, Economist Intelligence Unit,
United Kingdom (1968 - 1972)
Economist, British Petroleum, U.K. (1965 - 1968)

EXPERIENCE SUMMARY

Management Development

Design and presentation of senior management courses
for the Administrative Staff College of Nigeria,
including instruction in management consulting.

Market Research

Project Manager on a study of the existing
characteristics and potential of the solar energy
industry in Canada. Examined the structure, output,
costs and general trends of the industry.

Assisted with a study of future trends in the
automation and integration of office products and
services.

Investigated the nature of the British shipbuilding
industry to identify, in terms of product demand and
internal operations, the basic problems and future
prospects for the industry.

Assessed the demand for all-cargo jumbo aircraft and
analyzed their financial viability.

Appraised the five-year development prospects of the
United Kingdom chemical industry, including future
international markets for plastic materials.

Assisted British Petroleum with the programming of
their oil refinery production in relation to the
world-wide pattern of product demand and the required
investment in infrastructure and operating
facilities.

Social Sciences

As a part of a larger study, examined past Federal
programs concerned with Indian and native peoples.

Highway Evaluation

Advisor to the Department of Regional Economic
Expansion on socio-economic highway evaluation
procedures.

Responsible for the review and update of the economic
evaluation undertaken on the Surabaya to Malang
Highway feasibility study in Indonesia.

Ports and Facilities

Participated in a study of containerization of port
and inland facilities in Malaysia which included an
assessment of potential usage and the effect on the
Malaysian economy.

Senior economist on a port appraisal study in British
Honduras. Work included trade forecasts, financial
appraisal and cost benefit analysis.

Transportation and Land Use

Supervisor of economic studies on a new transportation
link between Caracas and the coast in Venezuela.
Examined road and rail links.

Senior economist on the South Thailand Regional
Planning Study. Work included economic appraisal of
the rail system and examination of the road network.

Project economist on the Nairobi Urban Development
Study. Assessed short and long term economic change
on housing and transportation sector.

Economic feasibility studies of a new river crossing
and of a major pedestrian subway in England.

Project Manager on a study of the influence of
automobile insurance on the journey to work and the
resulting costs and benefits in the private sector.

Policy and Programs

Assisted in establishing evaluation criteria for the
selection of contractors to receive government
assistance in producing solar energy equipment.



David P. Deziel

RESUME



PERSONAL INFORMATION

Date of Birth: August 19, 1940
Nationality: Canadian
Languages Spoken: English, French

PROFESSIONAL QUALIFICATIONS

Ph.D. in Operational Research, Imperial College (1966)
Diploma in Operational Research and Management Studies, Imperial College and London School of Economics (1964)
B.Sc. in Applied Science (Eng), University of Ottawa (1962)

PROFESSIONAL ASSOCIATIONS

Canadian Operational Research Society (Full Member & Past President)
Operational Research Society of Great Britain (Full Member)
Fellowship for Operational Research (Fellow)
Association of Professional Engineers of Ontario
Canadian Association for the Club of Rome

EMPLOYMENT HISTORY

Partner, Hickling-Partners Inc.
(November 1979 - present)

Partner, Systems Approach Consultants Ltd.
(January 1975 - October 1979)

Director, Assistant Director, Senior Consultant,
Bureau of Management Consulting, Government of
Canada, Ottawa (December 1969 - January 1975)

Defense Research Scientific Officer, Directorate of
Logistics Analysis, Defense Research Board, Ottawa
(September 1968 - November 1969)

Assistant Professor, Imperial College, London, England
(September 1966 - September 1968)

EXPERIENCE SUMMARY

David Deziel has been engaged in the application of analytic methods to management problems and the implementation of results for many years. His experience includes work in the areas of policy analysis, planning, design and evaluation of major programs for government and, to a lesser extent, private industry. Application areas have included work in production, transportation, communications, finance and personnel. Techniques involved in his work have ranged from common sense solutions to the application of mathematical, economic and statistical methods. Dr. Deziel has had several papers published in professional journals. Past project assignments have included work in the following areas:

Industry Support

Econometric analysis of the shipbuilding industry, forecasting of shipbuilding subsidy requirements, development of an econometric model to estimate shadow costs for industrial support proposals, study of the security services industry, small business statistical database.

Evaluation

Development of a methodology to evaluate the contracting out policy, evaluation of the Rail Relocation and Crossing Act, evaluation of alternative air passenger terminal designs, evaluation of the Nanisivik lead-zinc mine project.

Transportation

Assessment of the economic impact of Maritime Freight Rate Subsidies, airport terminal simulation, cost benefit analysis of alternative terminal designs, air traffic forecasting, air traffic allocation, project planning for the Mackenzie Highway, model of an inland grain distribution system, design of a research program into problems of the transportation handicapped, assessment of costs and benefits of rail relocation, development of a method for measuring railway capacity.

Communications

Corporate model of postal operations, study of postal urban collection and delivery methods, survey of VHF satellite applications, analysis of the market for rural telephone equipment, analysis of the market for satellite communications in Canada.

Systems

Production scheduling, inventory control, production modelling, model of a financial merger, computer model of a military logistics system, development of a system for controlling correspondence flow, planning departmental moves, systems analysis of the trademark process.

Financial

Development of a computer aided program budgeting system, appropriate rate of interest determination under the RRCA.

Personnel

Regression analysis of compensation survey results, developing classification audit procedures.

Development Planning

Schedules for oil and gas development in the Mackenzie Delta, development of an employment model, project planning and control for the Mackenzie Delta Regional Planning Project.

General

Analysis of operational audit procedures, corporate planning study, comparative analysis of world models.



ANDREW SIMAN

RESUME

PERSONAL INFORMATION

Date of Birth: September 27, 1944
Nationality: Canadian
Languages Spoken: English, functional French

PROFESSIONAL QUALIFICATIONS

B.Eng. McGill University (1966)
M.B.A. University of Western Ontario (1970)

EMPLOYMENT HISTORY

Senior Consultant, Hickling-Partners Inc.
(1981 - present)

Director, Financial Policy Development, Department of Industry, Trade and Commerce, Government of Canada, Ottawa (1977 - 1981)

Senior Policy Advisor/Analyst, Department of Industry, Trade and Commerce, Government of Canada, Ottawa (1974 - 1977)

Senior Planning Officer/Consultant, Department of Supply and Services, Government of Canada, Ottawa (1971 - 1974)

Manager, Corporate Planning, Northern Telecom, Montreal (1970 - 1971)

Assistant Regional Director, Western U.S., Department of Industry, Trade and Commerce, Government of Canada, Los Angeles (1967 - 1968)

Industrial Development and Procurement Officer, Department of Supply and Services, Government of Canada (1966 - 1967)

Developed a costing system for the services provided by the supply administration side of the Department of Supply and Services to other federal departments and agencies.

Corporate Planning

Responsible for implementing and administering a division-wide system of planning; discerning and effecting necessary planning studies; and coordinating the overall corporate-division planning effort. As a result of this effort, the Division was incorporated as a separate subsidiary (NEDCO) of Northern Telecom and aggressively expanded into the United States.

Was responsible for the development, organization, and coordination of operational plans, managing 14 major tasks for Supply and Services Executive Committee, and managing special projects related to the development of a management information and reporting system and an operational efficiency performance measurement system.

Business Administration/Market Research

As Special Advisor to the Assistant Deputy Minister, Enterprise Development, initiated and directed several background studies relating to the research and development environment in Canada. Also, was responsible for the preparation of the widely distributed "Sources of Venture Capital in Canada" publication.

Promoted Canadian manufacturers to U.S. defence contractors and U.S. government defence procurement agencies; assessed local economic conditions; conducted market research studies; and assisted Canadian manufacturers with their marketing planning, the securing of reliable agents and introducing them to key U.S. businessmen and U.S. military personnel.

Responsible for the procurement of Canadian defence requirements and recommending steps necessary to maintain and/or develop an efficient defence base, including research and development projects for advanced military supplies and development of alternate sources of supply.

EXPERIENCE SUMMARY

Andrew Siman has a proven record of success as a professional and senior manager. He has applied his formal training in engineering, economics, and finance to a variety of conceptual issues and practical business concerns, particularly in the areas of Business/Government Relations and Small Business Growth and Expansion. The application areas encountered so far include:

Financial Management

Responsible for the development of policies and initiatives relating to the availability of debt and equity financing for small and medium-sized businesses in Canada and the formulation of taxation policy.

Analyzed the effectiveness of financial incentives programs to industry as a precursor to the creation of the now consolidated Enterprise Development Program. Other responsibilities involved the establishment of the Federal Business Development Bank and a comprehensive review of the impact of foreign investment in Canada.



Zoraida Carballeira

RESUME

PERSONAL INFORMATION

Date of Birth: April 12, 1945
Citizenship: United States
Languages Spoken: English, Spanish
Security Clearance: Pending

PROFESSIONAL QUALIFICATIONS

MPA (Mid-Career Program in Public Administration),
Harvard University (1981)
MS (Environmental Sciences), University of
California, Berkeley (1972)
BA (Environmental Design), University of
California, Berkeley (1969)

EMPLOYMENT HISTORY

Consultant, Hickling-Partners Inc.
(October 1981 - present)

Environmental Analyst, U.S. Environmental Protection
Agency - Region I, Boston
(September 1980 - June 1981)

Regional Representative, US Department of Commerce -
Office of Coastal Zone Management, San Francisco
(September 1979 - September 1980)

Evaluation and Policy Analyst, US Department of
Commerce - Office of Coastal Zone Management,
Washington, DC (April 1978 - September 1979)

Program Analyst, US Environmental Protection Agency,
Office of Water Supply, Washington, DC
(October 1973 - April 1978)

Environmental Specialist, U.S. Environmental
Protection Agency, Enforcement Division - Region IX,
San Francisco, (1971-1973)

EXPERIENCE SUMMARY

Zoraida J. Carballeira has been involved in the evaluation of environmental and resource management programs for many years. During the time spent at Harvard University's Mid-Career Program, she specialized in evaluation methodology and environmental policy. The ten years spent in the US federal service also included program management and design as well as regulation writing and publication giving her wide experience in dealing with all levels of government from briefings of US Congressmen to holding public meetings in isolated fishing communities of Maine and Alaska. Ms. Carballeira has also been involved in defining the sensitive relationship between federal and state agencies and between pro-development and conservationist interests.

Evaluation

- responsible for the evaluation of federally funded state programs for the management of coastal resources in the states of Alaska, New Jersey, Puerto Rico and California. Responsibilities included design, supervision of field research staff, intensive interviewing of official and private interest groups, public hearings, and preparation of findings and recommendations to the chief executive.

- program evaluation responsibilities have addressed the following controversial issues: energy development vs. wildlife protection, native rights, and wetlands management (Alaska); US Navy - state relations, (California); funding eligibility of automated mapping, and management of sand dune developments (New Jersey).
- participated in the design, by the President's Council on Environmental Quality, of a major evaluation of a federal grants program for the construction of sewage treatment facilities and their impact on local land use patterns.
- designed the evaluation, using quantitative methodology, of a regionally administrated federal program for the protection of ground-water resources in Long Island; San Antonio, Texas; Fresno, California; Southern Florida; Spokane, Washington; and the Island of Guam.

Program Design and Regulations

- managed the regulatory process and prepared regulations for the national aquifer protection program, responded to public comments and published the regulations in the Federal Register.
- implemented the national aquifer protection program for the US Environmental Protection Agency whereby that agency could review and veto any federal financially assisted project endangering public water supplies.

Co-ordination and Interagency Relations

- conducted extensive briefings of federal agencies affected by environmental regulations.
- created and chaired a regional Task Force on urban waterfront redevelopment projects to co-ordinate federal coastal activities and provide a forum for state and local funding requests in the Pacific Region.
- briefed member of US Congress on the impact of environmental programs on their constituencies.
- represented the Office of Water Supply in the Hazardous Wastes and Solid Waste Disposal regulatory Task Forces.
- testified before Alaska's Coastal Council and requested Council members comments on Alaska's management programs.



Michael Bartlett

RESUME



PERSONAL INFORMATION

Date of Birth: August 5, 1954
Citizenship: Canadian
Security Clearance: Pending

PROFESSIONAL QUALIFICATIONS

B.Sc. (Human Physiology, First Class Honours)
McGill University, Montreal, Quebec
M.B.A.
Queen's University, Kingston, Ontario

EMPLOYMENT HISTORY

Consultant, Hickling-Partners Inc.,
July 1981-present

Personnel Specialist, Fisher Gauge Limited,
Peterborough, Ontario, September 1978 to May 1979

Outdoor Skills Instructor for the Handicapped,
Camp Outlook, Kingston, Ontario,
(May 1978 to December 1978)

EXPERIENCE SUMMARY

Mr. Bartlett has been applying his training in physiology and business administration to a variety of work environments.

He has spent 2 years travelling abroad since the end of his formal training.

MARKET RESEARCH

Participated in a research project for a large Canadian bus line. The project measured passenger demand elasticity, and characterized the client's summer market. It involved designing, distributing, and collecting a field survey; analysis of the data using various techniques on an SPSS package; and summarizing the findings in a written report.

COMPENSATION RESEARCH

Researched and wrote a report for top management comparing technical and clerical salary structures in Peterborough.

STATISTICS

Compiled and analyzed gasoline consumption data in the Yukon to assess the impact of a vehicle inspection program of Environment Canada.

Compiled, analyzed and summarized data for use by management negotiators during labour contract renewal talks.

DECISION ANALYSIS

Partly responsible for writing a report on fuel conservation methods for municipal vehicle fleets for the Ontario Ministry of Transportation and Communications.

PERSONNEL ADMINISTRATION

Administered the benefits package for Fisher Gauge Limited.

Counselled employees on their entitlements under the benefits program.

Liaisoned with insurance company representatives.

Administered the company's wage and salary guidelines for unionized workers.

EMPLOYMENT

Was responsible for filling hourly and clerical job openings. Interviewing, consulting with supervisors, reference checking.

LABOUR RELATIONS

Participated in contract negotiations for management during the 1979 contract renewal talks.

Advised supervisors on interpretation of company policies.

PUBLIC RELATIONS

Represented the employer to interested groups from the Peterborough community.

OUTDOOR SKILLS INSTRUCTION FOR THE HANDICAPPED

Did volunteer work in canoeing and camping skills with emotionally and economically handicapped young people.



Karen L. Walker

RESUME



PERSONAL INFORMATION

Date of Birth: January 19, 1956
Nationality: Canadian
Languages Spoken: English

PROFESSIONAL QUALIFICATIONS

B.A. (Honours Mathematical Sciences), Carleton University (1978)

EMPLOYMENT HISTORY

Consultant, Hickling-Partners Inc.
(December 1979 - present)

Research Assistant, Canada Mortgage and Housing Corporation (May 1978 - November 1979)

EXPERIENCE SUMMARY

Karen Walker has considerable research experience in the application of mathematical and statistical techniques to social and economic problems in both government and private industry. Her capabilities include the analysis of national, regional and local studies for government and business related to a wide range of social, economic, and political issues. Ms. Walker has had experience in data collection, statistical analysis, surveys and report preparation.

Project activities include the following:

Data Collection and Statistical Analysis

Responsible for the analysis of data collected on a small business loans act program. Using the results of this analysis, developed a sample frame used to perform a further in-depth study of the operation of the program.

Responsible for programming of information on small business intern program data, with the aim of filing various statistics to better evaluate the program's performance.

Participated in the analysis of business data as part of a statistical profile of Canadian small businesses.

Performed comprehensive analyses on a national driving survey database which included a thorough analysis of the nature and extent of non-response to the completed survey, a thorough description of the sample

which had been obtained, and a report that documented the analyses performed, the conclusions drawn, with recommendations for further analyses to be performed.

Responsible for summarizing and compiling information on various CHMC housing programs through the extraction and tabulation of data from program files and various surveys.

Surveys

Performed a series of interviews with several federal government departments in order to determine the services and programs available to native peoples, and compiled both descriptive and expenditure information for publication in a series of reports.

Participated in an investigation of a material management information system which included conducting in-depth interviews with its regional offices' staff, documenting the present system, making recommendations for its improvement in the interim period and outlining long range goals.

Report Preparation

Responsible for overseeing the publication of 27 individual reports on the supply and demand of serviced residential land in 27 urban centres; included review and editing of each report, liaison between the national office and each branch office and supervision of the printing.

General

Has studied COBOL, FORTRAN and APL, and has a working knowledge of SPSS.



HICKLING-PARTNERS

SERVICES

THE CHALLENGE OF DECISION-MAKING

This brochure is addressed to those who must make decisions for today and plans for tomorrow. As you are no doubt aware, the process of decision-making can be very complex, and is likely to become more complex as a result of the rapidly changing environment in which enterprises operate.

Fortunately, the tools to cope with these conditions are also changing. Such tools, when applied to problem-solving, go a long way towards making it possible to anticipate accurately the probable consequences of significant decisions. These tools have produced a new generation of analyst teams, skilled in the application of systems methods to real-world problems.

One such team is Hickling-Partners Inc. (HPI). This brochure tells what HPI is, what it believes, how it works, and how it may be able to assist you and others in the tasks of planning and decision-making.

OUR RESPONSE TO THE CHALLENGE

Hickling-Partners Inc., a Canadian company with offices in Toronto, Ottawa, and Vancouver, and overseas affiliates in thirty-three countries, was established to provide a problem-solving service to industry and government.

The company, with a staff of over 50 professionals specializing in the areas of management science, information systems, human resources and financial management has as its objectives:

- To provide a comprehensive problem-solving capability that includes the disciplines of engineering, economics, statistics, management science and operational research.
- To provide a comprehensive problem-solving capability to assist with managerial problems that concern information systems, human resources and financial management.

To meet these aims, HPI has assembled a team of highly qualified and experienced individuals whose interests lie in problem-solving. This approach has enabled us to establish a sound reputation as consultants successful in dealing with complex assignments.

A PRACTICAL PROBLEM-SOLVING APPROACH

Hickling-Partners Inc. has geared itself to cope with diversity of challenge by using an approach which spans several disciplines and employs a variety of analytic techniques.

It is believed that each problem is best approached by a multidisciplinary project team selected to meet the particular needs of the problem. Thus, several disciplines would appear in each project team plus a specific expertise in economics, transportation,

computer science or some other area relevant to the problem.

A BALANCED PROFESSIONAL TEAM

Decision-making, because of its complexity, calls for articulate, specialized analysis from many points of view. The staff of HPI have diverse academic backgrounds and practical planning experience. They hold advanced degrees in fields ranging from aeronautical engineering to the liberal arts. The result is a group that enhances the multidisciplinary approach needed in problem-solving pursuits.

Hickling-Partners Inc. is aware of the need for cross-fertilization of ideas among the staff and strives to maintain a balanced professional team.

A BACKGROUND OF PRACTICAL EXPERIENCE

To provide an indication of the broad range and size of HPI's assignments, here are some of the things that we have been involved in...development of a senior management training course for the Nigerian civil service...assessment of future technology relevant to office communications systems... risk management and resource allocation for aviation safety...statistical profile of small business in Canada...the simulation of passenger handling facilities at Mirabel...computerized consultant selection.

Hickling-Partners Inc. has a practical background in tactical and strategic planning, specialized problem-solving and dealing with complex as well as simple projects.

THE NEED FOR CONSULTING SERVICES

Professional management consulting services, such as supplied by HPI, can assist with your decision-making when any of the following is required or desired:

- the objectivity and confidentiality provided by outsiders,
- specialized knowledge not available within your organization,
- analysis of a problem without interference in operations,
- the consultants's experience in resolving similar problems,
- introduction of proven new techniques into your operation, or
- services of qualified specialists for short-term projects

The objectives and scope of management consulting assignments are determined by the client's needs. The key ingredient is continuous client contact throughout the assignment.



MANAGEMENT CONSULTING SERVICES

The sphere of Hickling-Partners Inc. (HPI) consulting practice extends into all major aspects of management as well as administrative and policy concerns of government, private and non-profit organizations.

Hickling-Partners Inc. has performed management consulting engagements in organization analysis, operations improvements, financial management, systems design and implementation reviews of data processing systems, executive placement, management training and development, personnel administration, long range planning and market research studies.

The staff of HPI have diverse academic backgrounds and practical planning experience. The full-time professional staff of economists, engineers, statisticians, accountants, management scientists, systems analysts, and computer programmers enhances the multidisciplinary approach needed in management consulting.

Hickling-Partners Inc. provides the following comprehensive client services in management consulting:

PLANNING, MANAGEMENT AND CONTROL

POLICY ASSESSMENTS: Analysis and development of policies and programs to meet defined responsibilities, review and documentation of responsibilities, identification of effective and acceptable policies.

CORPORATE PLANNING: Strategic short- and long-range planning, development of corporate policy and organization structure, expansion programs and project improvement, futures modelling.

ORGANIZATION ANALYSIS: Comprehensive organization reviews, definition and development of organizational objectives, and management selection, development and training.

MANAGEMENT INFORMATION AND CONTROL: Total information systems, information for decision-making, inventory and financial control systems, financial analysis, forecasting and planning.

PROGRAM EVALUATION: Policy/program evaluations, operational audits, cost/benefit and cost-effectiveness analysis, economic and environmental impact assessments, statistical analysis and attitudinal surveys.

PROJECT MANAGEMENT: Definition of project objectives and deliverables, preparation of project plans, allocation of staff and other resources, progress reporting and project control.

MANAGEMENT SCIENCES

APPLIED MATHEMATICS: Application of statistical and numerical methods to management problems, survey design and analysis, quality control, model building and simulation, statistical software and packages.

BUSINESS ADMINISTRATION: Strategic and corporate planning, management and operational control, organization structure and objectives, program planning and budgeting, economic and financial analysis.

OPERATIONS RESEARCH: Systems analysis, mathematical and computer modelling and simulation, forecasting and trend analysis, econometric modelling, financial analysis and forecasting, network analysis.

SYSTEMS ENGINEERING: Application of systems engineering techniques and processes to management problems, systems analysis and design, systems management, systems testing and evaluation.

SOCIAL SCIENCE: Application of social science techniques to problem-solving and production of decision-relevant information, innovative approaches to a wide variety of practical and theoretical tasks.

APPLIED ECONOMICS: Analysis of economic programs, econometric analysis, economic forecasting, cost-benefit analysis, socio-economic impact studies, economic feasibility studies.

MANAGEMENT SCIENCE APPLICATIONS

TRANSPORTATION SYSTEMS: Transportation systems management analysis and planning, transportation systems analysis and modelling, transport surveys, travel demand, research and development studies.

COMMUNICATION SYSTEMS: Data communication, office communication and telecommunication systems, command, control and communication systems for industry, business and government.

INFORMATION SYSTEMS: Design and development of management information systems, providing decision support to marketing, finance, production, inventory, personnel, and engineering.

ENERGY AND RESOURCE SYSTEMS: Solar energy feasibility studies, studies of alternative energy sources, development of energy conservation programs, analysis of energy policies and plans.

MANUFACTURING AND INDUSTRY: Review of operational effectiveness, establishment of quality and inventory controls, setting of production standards, work flow, equipment and facility utilization.

GENERAL MANAGEMENT: Assistance in the identification and solution of overall corporate problems and improving productivity for government agencies, public and private institutions.



INFORMATION SYSTEMS

SERVICES

Hickling-Partners Inc. (HPI) offers a complete range of consulting services in information processing. These include: project planning, management and control; technical evaluations and studies; systems design and development. Our expertise has been applied to problems in administration, planning, finance, business, transportation, communications, government services, manufacturing, statistics and research.

The individual consultants at HPI are highly skilled in various specialty areas, and are assigned to projects on the basis of a client's particular requirements. Furthermore, the collective experience of our staff, in virtually every aspect of the management and practice of information processing, is a resource upon which all our consultants and clients may draw. This ensures the highest quality of service and expertise.

PLANNING, MANAGEMENT AND CONTROL

POLICY ANALYSIS: Policy analysis and development; EDP planning and administration; personnel and organization planning; development of methodologies and implementation approaches; security and risk planning; development of standards.

PROCUREMENT: Preparation of RFP's and tenders; evaluation of proposals; product selection; contract negotiation and analysis; benchmark and acceptance testing; installation supervision; vendor liaison.

FEASIBILITY STUDIES: Technical and economic feasibility studies; cost/benefit analyses; market studies; product price-and-availability studies;

TECHNOLOGICAL ASSESSMENT: Technological and state-of-the-art reviews; trends analyses; forecasts of future development.

HARDWARE/SOFTWARE EVALUATIONS: Evaluations for the selection and utilization of computer resources: systems software, applications software, hardware components, equipment configurations, and overall EDP installations.

PERFORMANCE MEASUREMENT: Evaluation and measurement of the performance of computer systems (hardware and software); appraisal of vendor services; post-implementation evaluations; system audits.

SYSTEMS DESIGN AND DEVELOPMENT

SYSTEMS ANALYSIS: Problem definition; feasibility study; information requirements analysis; work flow and procedures analysis; system concept development; functional specifications.

SYSTEMS DESIGN: Detailed system specifications; structured top-down system design; hardware configuration; software design; program and file structure definition.

SYSTEMS ENGINEERING: Specification of computer system components; design and development of digital interface devices; development of communications interfaces and software; process control systems.

SYSTEMS IMPLEMENTATION: Applications software programming; file creation; module testing; system conversion (programs, files, procedures); parallel operation; acceptance testing.

SYSTEMS DOCUMENTATION: System and program documentation; office procedures and standards documentation; technical writing; user documentation and training manuals.

PROJECT MANAGEMENT: Definition of project scope, objectives and deliverables; preparation of project plans; allocation of resources; progress reporting and control; measurement of performance against plan.

SYSTEMS APPLICATION AREAS

DATA BASE SYSTEM: Evaluation of systems for data base potential; evaluation and implementation of commercial data base management packages; design and implementation of custom data bases.

DATA COMMUNICATIONS: Design and implementation of telecommunications software; hardware and software evaluation; network analysis and design; interfacing to common carrier networks.

BUSINESS SYSTEMS: Design and implementation of minicomputer systems for business applications: accounts payable and receivable, general ledger, payroll, inventory control, etc.

OFFICE COMMUNICATIONS SYSTEM: Information storage and retrieval; word processing; text processing; work procedures and methods; automated records management; administrative support systems.

MANAGEMENT INFORMATION SYSTEMS: Design and implementation of management information systems, providing decision support to marketing, finance, production, inventory, personnel and engineering.

STATISTICAL AND NUMERICAL ANALYSIS: Design and implementation of systems using advanced statistical and numerical techniques; development of numerical algorithms and problem solving techniques.



PROJECT APPRAISAL

SERVICES

Hickling-Partners Inc. (HPI) offers a fully integrated project appraisal service for both the public and private sectors. Bringing together the combined skills of finance specialists, accountants, economists, statisticians, engineers and where appropriate other technical specialists such as environmentalists, sociologists, and personnel experts, the firm offers a comprehensive and thorough project appraisal capability. It is recognized that a key element of project appraisal involves assessing the organization and managerial capabilities of the project team. Our specialists are backed up with senior project managers who possess the practical skills and depth of experience needed to draw together the various specialist appraisals, to assess the technical capabilities of the project team and to provide a balanced and realistic assessment of any project proposal. Specifically, our appraisal team can offer the following services:

PUBLIC SECTOR PROJECT APPRAISAL

COST BENEFIT ANALYSIS: A comprehensive method of appraising the impact of a project, in social and economic terms, on the society concerned allowing selection to be made between projects. It includes appraisal of both quantitative and qualitative factors with the objective of determining the overall feasibility of the project for society. CBA utilises many techniques including the following:

Consumer Surplus Analysis: Assessing the benefits consumers receive from the output of a project over and above what they are required to pay.

Shadow Price Analysis: The prices attributed to the inputs and outputs of a project where their market prices do not reflect the real cost to society. Also referred to as accounting prices.

Analysis of Externalities: Examination of the incidental and unintended effects of a project.

Distributional Impact Analysis: The impact of the project on different sectors in society.

Sensitivity Analysis: Examination of the impact of changes in assumptions for different parameters used in the project appraisal to assess their affects on the outcome of the project.

Discounted Cash Flow Analysis: The use of discounting techniques to translate the future time stream of costs and benefits arising from projects into a common denominator called "present value" for the purpose of comparison.

PRIVATE SECTOR PROJECT APPRAISAL

PROJECT PLANNING AND BUDGETING: Assistance in the preparation of detailed project operating plans, budgets and long term financial plans, as well as break-even analysis.

FINANCIAL ANALYSIS OF IMPACT ON FIRM: Preparation of proforma financial projections of the impact of the project on the firm's financial accounts. If necessary, a computerized model can be developed to undertake analyses of a variety of risk scenarios.

STRATEGIES FOR PROJECT FINANCING: Preparation of a variety of project financing options can be assessed including the costs and benefits as well as the risks of each. The financial strategies may be incorporated into the financial studies of the impact on the firm.

INVESTMENT ANALYSIS: Analysis of the investment worthiness of the project using Discounted Cash Flow analysis, with and without Tax consequences and financing options. An evaluation can be undertaken to assess uncertainty using mathematical modelling.



FINANCIAL MANAGEMENT

SERVICES

Hickling-Partners Inc. (HPI) offers a complete range of services to assist chief executives and managers in the rigorous process of defining objectives, auditing strengths and weaknesses, preparing forecasts, evaluating existing and emerging market opportunities, determining the optimum allocation of resources, assessing risks, devising financial management and control systems, advising on government assistance programs and organizing for effective implementation of plans.

To assist management in this vital financial management area, HPI has organized a professional staff experienced in working with executives on the critical managerial issues and problems concerned with money.

Hickling-Partners Inc. provides the following comprehensive client services in financial management:

FINANCIAL MANAGEMENT, PLANNING AND CONTROL

FINANCIAL PLANNING: Evaluation of financial plans and policies, valuation and management of credit, sources and uses of funds analysis, financial forecasting and financial control techniques.

WORKING CAPITAL MANAGEMENT: Counselling in management of short-term current assets and liabilities, short-term securities, accounts receivable and inventories, credit and collection.

INVESTMENT ANALYSIS: Assistance in capital budgeting decisions using probability distribution, trade-offs between risk and uncertainty, decision trees and simulation, ranking of investments.

MARKET RESEARCH ANALYSIS: Surveys for commerce and industry, short and long-term projection, supply, demand and penetration levels for products and services, marketing plans and development.

MERGERS AND ACQUISITIONS: Evaluation of financial joint ventures, planning for incorporations, reorganizations and liquidations, special purpose audits of proposed acquisitions.

FINANCIAL CONTROL: Establishment of overall profit goals, department goals to achieve profit goals, comparison of results to plans, performance measurement.

FINANCIAL MANAGEMENT TECHNIQUES

FINANCIAL FORECASTING: Application of financial forecasting techniques such as cash flow cycles, percent-of-sales, simple and multiple regressions, and trend analysis.

PROFIT PLANNING: Profit planning by means of break-even analysis, fixed and variable costs analysis, operating leverage and degree of leverage, and cash break-even analysis.

RATIO ANALYSIS: Calculation, comparison and evaluation of liquidity, leverage, activity and profitability ratios, determination of ratios interaction and meaning.

MANAGEMENT SCIENCES: Application of management science methodologies to financial decisions -- linear programming, game theory, simulation and other operations research techniques.

ECONOMIC ANALYSIS: Project and program feasibility analysis applying such techniques as cost-benefit, rate of return, present value and parameter sensitivity using cash flow and total cost models.

FINANCIAL ANALYSIS: Calculation and evaluation of weighted cost of capital combining debt and equity, effect of leverage on cost of equity and debt, average and marginal costs.

FINANCIAL MANAGEMENT APPLICATIONS

AUDITING AND ACCOUNTING: Examination and audit of financial statement, review and training of internal audit staff, development of internal accounting procedures.

PLANNING AND BUDGETING: Establishment of detailed operating plans, cash budgets, budgeted income statements and projected balance sheets.

TAX PLANNING: Preparation or review of income tax returns, tax problems of new branches or foreign subsidiaries, review of tax logic in computer programs.

CURRENT ASSET MANAGEMENT: Assistance in cash management, management of accounts receivable, credit and collection policy, inventory analysis and decision models.

LONG-TERM INVESTMENT: Counselling in long-term investment decisions and long-term financing, public investment decisions, evaluation of portfolio risk and uncertainty.

TRUSTEE AND BANKRUPTCY: Receiverships for secured creditors and for shareholders, performing liquidations, handling bankruptcies and making proposals to creditors.

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